



Atty. Docket No. MIC35 P-321

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CERTIFICATE OF MAILING

I hereby certify that this paper, together with all enclosures identified herein, are being deposited with the United States Postal Service as first class mail, addressed to the Mail Stop Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on the date indicated below.

June 30, 2004
Date

Melanie S. Jernberg
Melanie S. Jernberg

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Art Unit : 1711
Examiner : Jeffrey C. Mullis
Applicants : Petar R. Dvornic et al.
Appln. No. : 09/888,736
Filing Date : June 25, 2001
Confirmation No. : 2078
For : HYPERBRANCHED POLYMER DOMAIN NETWORKS AND
METHODS OF MAKING SAME

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION - 37 CFR §1.192)

1. Transmitted herewith, in triplicate, is the APPELLANT'S BRIEF in this application, with respect to the Notice of Appeal filed on May 12, 2004.

2. **STATUS OF APPLICANTS**

This application is on behalf of:

___ other than a small entity.

X a small entity.

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3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 CFR §1.17(c), the fee for filing the Appeal Brief is:

X small entity \$165.00

other than a small entity \$330.00

Appeal Brief fee due: \$165.00

4. EXTENSION OF TERM

The proceedings herein are for a patent application and the provisions of 37 CFR §1.136 apply.

- (b) X Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that Applicants have inadvertently overlooked the need for a petition and fee for extension of time.

5. TOTAL FEE DUE

The total fee due is: 165.00

Appeal Brief fee: \$165.00

Extension fee (if any) \$ 0.00

TOTAL FEE DUE: \$165.00

6. FEE PAYMENT

X Attached is a check in the sum of \$165.00.

Charge Account No. 16 2463 the sum of \$.

A duplicate of this transmittal is attached.

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7. FEE DEFICIENCY

X If any additional extension and/or fee is required, this is a request therefor
and to charge Account No. 16 2463.

and/or

X If any additional fee for claims is required, charge Account No.
16 2463.

Respectfully submitted,

PETAR R. DVORNIC ET AL.

By: Price, Heneveld, Cooper,
DeWitt & Litton, LLP

6/30/04
Date

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Atty. Docket No. MIC35 P-321

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APPELLANT'S BRIEF (37 CFR §1.192)

This brief is in furtherance of the Notice of Appeal, filed in this case on May 12, 2004.

The fees required under §1.17(f), and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief is transmitted in triplicate. (37 CFR §1.192(a)).

This brief contains these items under the following headings, and in the order set forth below (37 CFR §1.192(c)):

- I. Real Party in Interest
- II. Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Invention
- VI. Issues
- VII. Grouping of Claims
- VIII. Arguments
- IX. Conclusion

Appendix of Claims Involved in the Appeal

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The final page of this brief bears the attorney's signature.

I. Real Party in Interest

The real party in interest in this application is Michigan Molecular Institute, a corporation of the state of Michigan having a place of business at 1910 West St. Andrews Road, Midland, Michigan 48640-2696.

II. Related Appeals and Interferences

There are not any related appeals or interferences which will directly affect, or be directly affected by, or have a bearing on, the Board's Decision in this Appeal.

III. Status of Claims

This is an Appeal from the rejection of claims 1-5, 12-17 and 24. The remaining claims (6-11 and 18-23) have been cancelled.

IV. Status of Amendments

Appellants have not filed an amendment after the Final Rejection. All previous amendments were entered.

V. Summary of the Invention

The invention concerns curable polymer compositions comprising a hyperbranched polymer having hydrolyzable functional groups, or a hyperbranched polymer having functional groups of a first type that are reactive with functional groups of a second type and at least one other polymer having functional groups of the second type. The compositions can be formulated to achieve rapid curing, reduced viscosity, high solids content, very low or zero volatile organic compound content, or any combination of these attributes. The cured materials exhibit high thermal stability, mechanical strength and toughness, and offer new ways for preparing specialty membranes, protective coatings, photoresists, novel composites and controlled porosity materials.

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VI. Issues

The issues under consideration in this Appeal are as follows:

A. Whether Appellants' Declaration filed September 25, 2003 is effective to overcome a prior art rejection under 35 U.S.C. §102(e) based on the teachings of U.S. Patent No. 6,448,337 (Gaddam et al.).

B. Whether Appellants' Declaration filed September 25, 2003 is effective to overcome a prior art rejection under 35 U.S.C. §102(e) based on United States Patent Application Publication No. US 2003/0096908 (Heilmann et al.).

VII. Grouping of Claims

For purposes of the Appeal only, all of the claims under appeal (1-5, 12-17 and 24) stand or fall together.

VIII. Arguments

A. Rejection Based On The Heilmann Et Al. Document

Claims 1-5, 12-17 and 24 have been rejected under 35 U.S.C. §102(e) as being anticipated by Heilmann et al. (United States Patent Application Publication No. US 2003/0096908). The Examiner has stated that paragraphs 0144 and 0198 disclose a composition "in which a hyperbranched oligomer is blended with a linear oligomer both of which contain coreactive groups." The Examiner also stated that claim 1 of the published application "also discloses the reaction of dendritic polymers and an oligomer containing coreactive pendant groups."

1. Discussion Of The Heilmann Et Al. Publication

The Heilmann et al. publication discloses coating compositions prepared from a first oligomer containing reactive functional groups capable of reacting at effective rates with a co-reactive second oligomer component possessing functionality that is complementary to that of the first oligomer. The first oligomer is an acrylic acid ester copolymer having pendant reactive functional groups, and the second oligomer is either a non-dendritic oligomer having a carbon-carbon backbone and pendant functional groups reactive with the functional groups of the first oligomer, or a dendritic polymer having pendant functional groups that are coreactive with the

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functional groups of the first oligomer. It is disclosed in the Heilmann et al. publication that dendritic polymers that may be used in the disclosed coating composition include dendrimers, regular dendrons, dendrigrafts, and hyperbranched polymers.

2. Analysis Of The Rejection

In response to the rejection, Appellant Jin Hu submitted a Declaration under 37 C.F.R. 1.131 which stated that “this Declaration and the exhibits and/or records accompanying this Declaration show that the invention defined in the claims 1-5, 12-17 and 24 of my above-identified patent application was conceived and reduced to practice by me and my coinventors prior to October 7, 1999, the filing date of U.S. Patent No. 6,448,337, and consequently before the June 19, 2001 effective filing date of United States Patent Application Publication No. US 2003/0096908.”

The exhibits did in fact, as stated in the Declaration, show prior reduction to practice of the claimed invention, i.e., “A curable composition comprising: a hyperbranched polymer having a plurality of functional groups of a first type; and a polymer having functional groups of a second type, wherein the functional groups of the second type are reactive with the functional groups of the first type under at least certain conditions.”

The Examiner responded to the Jin Hu Declaration by stating that it “is ineffective to overcome the Heilmann et al. (U.S. Application Publication No. 2003/0096908 reference.” The Examiner attempted to justify this position on grounds that the “Declaration only shows conception and reduction to practice of a single species mainly that containing a hyperbranched polymer containing amine functional group reacted with a linear polydimethylsiloxane containing epoxide functional groups and a species does not necessarily render obvious a genus.”

Thus, the Examiner has suggested that different cross-linking chemistry (reactive functional groups), different hyperbranched polymers and/or different polymer cross-linking molecules constitute different species of the invention.

The various cross-linking chemistries, different hyperbranched polymers, and polymer cross-linking molecules represent alternative embodiments, not different species of the same invention. In accordance with MPEP §715.04(C), a reference which discloses one or more embodiments of a single claimed invention, as opposed to species of a claimed genus, can be overcome by filing a 37 CFR 1.131 affidavit showing prior completion of a single embodiment of

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the invention, whether it is the same or different embodiment from that disclosed in the reference or activity. See *In re Fong*, 288 F.2d 932, 129, USPQ 264 (CCPA 1961). When Applicant discloses and claims an invention without assigning any criticality to the particular embodiments, a showing under 37 CFR 1.131 with respect to a single embodiment is sufficient. *In re Defano*, 392 F.2d 280, 157 USPQ 192 (CCPA 1968).

As stated in Appellants' response to the final rejection (dated March 12, 2004), Appellants' specification shows (at paragraphs 18 and 21) that Applicant did not regard the selection of particular hyperbranched polymers, the selection of particular cross-linking polymers, or the selection of particular cross-linking chemistry to be critical. The Examiner has taken the position that this is irrelevant because the specification is not prior art, nor do they involve admissions regarding prior art. Clearly, the Examiner has committed reversible error. As indicated in MPEP §715.04(C), *In re Fong* and *In re Defano*, it is relevant that Appellants did not allege criticality within the specification with respect to the selection of hyperbranched polymers, polymer cross-linkers, and cross-linking chemistry for use in the invention.

Because Appellants did not indicate criticality with respect to cross-linking chemistry, selection of hyperbranched polymers, and/or selection of cross-linking polymers, such selections represent different embodiments of the claimed invention, not different species of the invention. Accordingly, in accordance with the law set forth in *In re Fong* and *In re Defano*, the Rule 131 declaration was effective to show completion of the invention as claimed prior to the effective dates of the prior art references.

Further, MPEP §715.02 states that "The 37 CFR 1.131 affidavit or declaration must establish possession of either the whole invention claimed or something falling within the claim (such as a species of a claimed genus), in the sense that the claim as whole reads on it." The Examiner has admitted on the record that the Jin Hu Declaration establishes possession of at least a species of the claimed genus. Clearly, claim 1 reads on that embodiment. Specifically, the evidence shows a reduction to practice of a curable composition containing a hyperbranched polymer (specifically a hyperbranched polyamine) having a plurality of functional groups (specifically amine groups) of a first type, and a polymer (specifically, a polysiloxane) having functional groups of a second type (specifically, epoxy groups), wherein the functional groups of

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the first type are reactive with the functional groups of the second type under at least certain conditions, exactly as claimed. Thus, the Rule 1.131 Declaration meets the fundamental requirements stated in MPEP §715.02.

There is not any requirement that the showing under 37 C.F.R. 1.131 encompass all conceivable variations of the claimed invention. To the contrary, MPEP §715.02 expressly states that “a 37 CFR 1.131 affidavit is not insufficient merely because it does not show the identical disclosure of the reference(s) or the identical subject matter involved in the activity relied upon.” It is only necessary to provide “facts showing a completion of the invention commensurate with the extent of the invention as claimed” that is shown in the reference.

In response to the Final Rejection, Appellants explained that the embodiments shown in the applied Heilmann et al. publication would have been obvious in view of the embodiments completed by the Applicants prior to the effective date of the Heilmann et al. reference. Appellants provided evidence (U.S. Patent No. 5,866,630) showing that the selection of reactive groups for achieving cross-linking is well known in the art, and that the use of alternative reactive groups to effect cross-linking is a routine matter to those having ordinary skill in the art. Appellant also provided evidence (U.S. Patent No. 5,731,095) showing that those skilled in the art understood that generally any species of hyperbranched polymer having the required functional groups that react with the functional groups of the cross-linker may be used in a coating composition. Thus, the selection of suitable reactive groups and the selection of suitable hyperbranched polymers would have been a routine matter for those having ordinary skill in the art. In other words, one having ordinary skill in the art would have found it obvious to utilize the hyperbranched polyols described in the Heilmann et al. patent application based on Appellants’ 37 CFR 1.131 evidence prior to the effective date of the Heilmann et al. publication. Further, the use of different functional groups (other than amine and epoxide) and different hyperbranched polymers (other than a polyurea) would have been obvious to one of ordinary skill in the art in view of Appellants’ evidence of reduction to practice prior to the effective date of the Heilmann et al. reference. Accordingly, as stated in MPEP §715.02, “Such evidence is sufficient because applicant’s possession of what is shown carries with it possession of variations and adaptations which would have been obvious to one of ordinary skill in the art.”

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In the Advisory Action (dated April 19, 2004), the Examiner indicated that he was not persuaded by Appellants' arguments because he "has reviewed MPEP § 715.02 but sees nothing that indicates that a 131 Declaration which does not show the identical disclosure of the reference can be used to overcome a rejection without establishing that the differences between the affidavit and the reference was an obvious modification." Appellant has never maintained otherwise, and has provided evidence and arguments showing that the differences between the evidence and the Heilmann et al. reference would have been obvious to one having ordinary skill in the art.

The Examiner has admitted (in the Advisory Action) that a declaration under 37 CFR 1.131 showing a single species within a genus prior to the date of the reference is sufficient in most cases. However, the Examiner has taken the position that the MPEP is not clear with respect to whether the qualification "in most cases" refers only to the unpredictable arts. This statement does not appear to be relevant. However, it seems relatively clear that the MPEP is stating that evidence of a reduction to practice of a single species prior to the effective date of the reference is effective to antedate the reference in most cases, regardless of whether the invention is in the predictable or unpredictable arts, but that the Rule 131 Declaration may not be effective in the unpredictable arts "unless the applicant is able to establish that he or she was in possession of the generic invention prior to the effective date of the reference or activity." This is explained in the first paragraph of MPEP §715.03. MPEP §715.03 further states as follows:

Where the only pertinent disclosure in the reference or activity is a single species of the claimed genus, the applicant can overcome the rejection directly under 37 CFR 1.131 by showing prior possession of the species disclosed in the reference or activity. On the other hand, a reference or activity which discloses several species of a claimed genus can be overcome directly under 37 CFR 1.131 only by a showing that the applicant completed, prior to the date of the reference or activity, all of the species shown in the reference. *In re Stempel*, 241 F.2d 755, 113 USPQ 77 (CCPA 1957).

Proof of prior conception of a species different from the species of the reference or activity will be sufficient to overcome a reference indirectly under 37 CFR 1.131 if the species shown in the reference or activity would have been obvious in view of the species shown to have been made by the applicant. *In re Clarke*, 356 F.2d 987, 148 USPQ 665 (CCPA 1966); (*In re Plumb*, 470 F.2d 1403,

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176 USPQ 323 (CCPA 1973); *In re Hostettler*, 356 F.2d 562, 148 USPQ 514 (CCPA 1966). Alternatively, if the applicant cannot show possession of the species of the reference or activity in this manner, the applicant may be able to antedate the reference or activity indirectly by, for example, showing prior completion of one or more species which put him or her in possession of the claimed genus prior to the reference's or activity's date. The test is whether the species completed by applicant prior to the reference date or the activity's date provided an adequate basis for inferring that the invention has generic applicability. *In re Plumb*, 470 F.2d 1403, 176 USPQ 323 (CCPA 1973); *In re Rainer*, 390 F.2d 771, 156 USPQ 334 (CCPA 1968); *In re Clarke*, 356 F.2d 987, 148 USPQ 665 (CCPA 1966); *In re Shokal*, 242 F.2d 771, 113 USPQ 283 (CCPA 1957).

It is not necessary for the affidavit evidence to show that the applicant viewed his or her invention as encompassing more than the species actually made. The test is whether the facts set out in the affidavit are such as would persuade one skilled in the art that the applicant possessed so much of the invention as is shown in the reference or activity. *In re Schaub*, 537 F.2d 509, 190 USPQ 324 (CCPA 1976).

Thus, the Heilmann publication is indirectly antedated by Appellants' prior showing of reduction to practice of an embodiment of the invention that provides an adequate basis for inferring that the invention has generic applicability. Appellants have demonstrated that the invention (a curable composition comprising a hyperbranched polymer and a second polymer having functional groups that are reactive with the functional groups on the hyperbranched polymer) has generic applicability by demonstrating completion of the invention using an amine functionalized hyperbranched polyurea and an epoxide functionalized linear polysiloxane. As demonstrated by the disclosure in U.S. Patent No. 5,731,095, those having ordinary skill in the art would have understood that generally any dendritic polymer can be used in a curable coating composition (see column 4, lines 11-17). It should be noted that the '095 patent expressly discloses a coating composition containing a hyperbranched polyol, the only hyperbranched polymer disclosed in the Heilmann publication. Similarly, the use of any of various chemistries for effecting cross-linking or curing is well known in the art. This is demonstrated, for example, in U.S. Patent No. 5,866,630, which discloses cross-linkable coating compositions in which a polymer contains

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crosslinkable functional groups that may be reacted with a cross-linking agent containing appropriate reactive groups. Disclosed examples include polymers having carboxyl groups which are reactive with hydroxyl groups, amine groups, or isocyanate groups on a cross-linking molecule. Those having ordinary skill in the art would understand that various other condensation type reactions, such as those conventionally used for cross-linking or curing polymer compositions, may be employed. The obviousness of selecting different polymer cross-linking agents is also illustrated, for example, in U.S. Patent Nos. 5,543,456 and 6,140,012, each of which discloses various types of polymer cross-linkers that may be used interchangeably. Thus, those having ordinary skill in the art would have readily envisioned substantially all species encompassed by Appellants' claims from the specific embodiment of the invention that was reduced to practice as set forth in Appellants' Rule 131 Declaration.

The invention pertains to the discovery of useful cross-linkable compositions comprising a hyperbranched polymer and a second polymer capable of cross-linking with the hyperbranched polymer. Based on Appellants' disclosure of the invention, those having ordinary skill in the art would have recognized that generally any conventional cross-linking chemistry may be utilized, and that generally any type of hyperbranched polymer and generally any type of second polymer may be used for preparing a cross-linkable composition as claimed. While those having ordinary skill in the art would expect that the selection of particular hyperbranched polymers and cross-linking polymers would affect the physical properties of the resulting cured or cross-linked product, the chemistry and the resulting products and predictable. Because the various species would have been obvious to those having ordinary skill in the art based on the species reduced to practice, Appellants have provided an adequate basis for inferring that the embodiment completed by Appellants prior to the effective reference date has generic applicability. Therefore, applying the Rule of Law as set forth in the MPEP, *In re Plumb*, *In re Clarke* and *In re Hostettler*, Appellants' Rule 1.131 Declaration (dated September 21, 2003 and filed along with the Amendment dated September 25, 2003) is effective for overcoming the rejections under 35 U.S.C. §102(e) based on the Heilmann et al. application, provided that Appellants' are not claiming the same invention as is claimed in the Heilmann et al. application.

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The Examiner has attempted to discount the evidence submitted by Appellants by arguing the U.S. Patent No. 5,731, 095 “does not disclose the species of Heilmann et al. who discloses numerous dendritic polymers having a large array of functional groups at paragraph 83.” This observation ignores two very important facts. First, Appellants did not rely on the ‘095 patent to demonstrate that a large array of functional groups may be utilized for cross-linking. Instead, Appellants relied on the teachings of U.S. Patent No. 5,866,630 to show that a large variety of different types of cross-linking chemistries are well known to those having ordinary skill in the art. Those having ordinary skill in the art would know that cross-linking chemistry is not dependent on the molecular architecture of the polymer being cross-linked. In other words, given Appellants’ disclosure, those having ordinary skill in the art would expect cross-linking chemistry that is effective for linear polymers would also be effective for dendritic polymers. Secondly, it is irrelevant that the Heilmann et al. publication discloses numerous dendritic polymers. Appellants are claiming a composition comprising a specific class of dendritic polymer, namely a hyperbranched polymer. The Heilmann et al. publication discloses only one hyperbranched polymer, namely a hyperbranched polyol, which is also disclosed in the ‘095 patent. Further, examples of reactive terminal groups that may be utilized on dendritic polymers, as well as linear polymers, are extremely well known in the art as to not merit repeating. For example, U.S. Patent No. 5,527,524 provides a list of reactive functional groups for dendritic polymers, including “amino, hydroxy, mercapto, carboxy, alkenyl, nitrile, allyl, vinyl, amido, halo, urea, oxiranyl, aziridinyl, oxazolinyl, amidazolinyl, sulfonato, phosphonato, crown esters, bipyridines, chloromethylphenyl, isocyanato and isothiocyanato.” The 5,527,524 patent discloses dendritic polymers having surface functional groups that can be reacted with a functional group on a carried material, such as a radionuclide, chelator, chelated metal, signal generator, signal reflector, signal absorber or fragrance. It would be evident to any competent chemist, that the same chemistry used for linking a carried material to a dendritic polymer may also be used for cross-linking dendritic polymers, the only difference being that the cross-linker must have at least two functional groups reactive with the functional groups on the dendritic polymer, rather than just one as is the case with a carried material. There are numerous other patents that disclose dendritic polymers having surface functional groups, which those having ordinary skill in the art would know are useful for

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coreacting with functional groups on another molecule, such as a cross-linker. These patents include the following: 4,587,329; 4,694,064; 4,713,975; 4,737,550; 4,857,999; 4,871,779; 5,338,532; 5,418,136; 5,468,606; 5,482,830; 5,494,829 and many others.

As pointed out in the MPEP, the test is whether the species completed by Appellants prior to the reference date provides an adequate basis for inferring that the invention has generic applicability. The prior art clearly establishes that various chemistries may be utilized for cross-linking, various dendritic polymers may be utilized in coating compositions, and that various reactive functional groups may be present on dendritic polymers. From this large body of knowledge, those having ordinary skill in the art would infer that the specific embodiment reduced to practice by Appellants prior to the effective date of the Heilmann et al. reference is sufficient to infer that the invention has generic applicability.

Because Appellants have established completion of the invention prior to the effective date of the Heilmann et al. reference, the claims must be allowed unless it can be shown that Appellants are claiming the same invention as the Heilmann et al. reference.

The United States Court of Appeals For The Federal Circuit ruled on July 3, 2003 that the United States Patent and Trademark Office has properly construed 37 CFR §1.601(n) to require application of a two-way test for determining whether two parties claim the same patentable invention. *Eli Lilly & Co. v. Board of Regents of the University of Washington*, 67 USPQ.2d 1161 (CAFC 2003). According to the regulations “an interference-in-fact exists only if both parties to an interference have at least one claim that defines the same patentable invention.” The two-way test requires both that Appellants’ invention is either anticipated or obvious from the invention claimed in the reference and the invention claimed in the reference is anticipated or obvious from Appellants’ claimed invention. As pointed out in the response to the Final Rejection, the requirement in the Heilmann et al. claims for a melt processability at temperatures of 100° or less are neither anticipated nor obvious from Appellants’ claims. Thus, applying the United States Patent and Trademark Office’s own construction of 1.601(n), the two-way test is not met, and therefore, Appellants’ claims are not for the same invention as the claims of the Heilmann et al. publication. The Examiner has attempted to rebut Appellants’ argument by stating that “applicant’s specification discloses numerous examples of the materials which cure at 120° below and therefore

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could be said to be melt processable in that a non-cured material can still be thermoformed.” While it is not entirely clear, it appears that the Examiner is arguing that the Heilmann et al. claim requirement that the composition is melt processable at temperatures of 100°C or less would have been obvious from Appellants’ specification. However, this observation, whether true or not, is not relevant to the “two-way test” set forth in *Eli Lilly & Co. v. Board of Regents of the University of Washington*. The appropriate test is whether both Appellants’ invention is either anticipated or obvious from the invention claimed in the reference and the invention claimed in the reference is anticipated or obvious from Appellants’ claimed invention.

The requirement for melt processability at temperatures of 100°C or less is not anticipated or obvious based on Appellants’ claims. Therefore Appellants are not claiming the same invention as Heilmann et al. Further, Heilmann et al.’s claim requirement for an oligomer having a “carbon–carbon backbone,” constitutes another claim limitation that does not meet the two-way test for “same invention.” Specifically, Appellants’ claims do not anticipate or make obvious a composition as claimed by Heilmann et al. having an oligomer with a carbon-carbon backbone.

Thus, because Appellants have provided a declaration demonstrating completion of a particular embodiment of the invention (rather than a species) and/or has provided evidence showing that an embodiment of the invention having generic applicability was completed prior to the effective date of the prior art reference, and because Appellants’ claims and the claims of the Heilmann et al. reference do not meet the requirements for “same invention” as defined in the “two-way test” established by the United States Patent and Trademark Office and affirmed by the United States Court of Appeals for the Federal Circuit in *Eli Lilly*, the rejection under 35 U.S.C. §102(e) based on the Heilmann et al. reference has been effectively antedated by Appellants 37 C.F.R. 1.131 Declaration.

B. Rejection Based On The Gaddam Et Al. Patent

Claims 1-5, 12-17 and 24 have been rejected under 35 U.S.C. §102(e) as being anticipated by the Gaddam et al. patent (U.S. Patent No. 6,448,337). The Examiner has stated that claim 1 of the Gaddam et al. patent is directed to “a composition comprising two components including a dendritic polymer containing coreactive groups with one of the oligomeric components,” and that

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Examples 7-15 of the Gaddam et al. patent disclose “reaction of dendrimers and linear polymers containing coreactive groups.”

1. Discussion Of The Gaddam Et Al. Patent

The Gaddam et al. patent discloses pressure sensitive adhesives comprising a first component including a solute polymer having a plurality of polymerized monomer units with pendant reactive nucleophilic or electrophilic functional groups, and a second component having a plurality of coreactive nucleophilic or electrophilic functional groups, wherein the second component is selected from a second solute polymer comprising a plurality of polymerized monomer units having coreactive functional groups and a polyfunctional compound having coreactive functional groups; and a third component comprising at one free-radically polymerizable solvent monomer. Polyfunctional compounds that may be used in the composition include dendritic polymers, including hyperbranched polymers.

2. Analysis Of The Rejection

In response to the rejection, Appellant Jin Hu submitted a Declaration under 37 C.F.R 1.131 which stated that “this Declaration and the exhibits and/or records accompanying this Declaration show that the invention defined in the claims 1-5, 12-17 and 24 of my above-identified patent application was conceived and reduced to practice by me and my coinventors prior to October 7, 1999, the filing date of U.S. Patent No. 6,448,337 . . .”

The exhibits did in fact, as stated in the Declaration, show prior reduction to practice of the claimed invention i.e., “a curable composition comprising: a hyperbranched polymer having a plurality of functional groups of a first type; and a polymer having functional groups of a second type, wherein the functional groups of the second type are reactive with the functional groups of the first type under at least certain conditions.”

The Examiner responded to the Jin Hu Declaration by stating that it “is ineffective to overcome the Gaddam (USP 6,448,337) reference . . .” The Examiner attempted to justify this position on grounds that the “Declaration only shows conception and reduction to practice of a single species mainly that containing a hyperbranched polymer containing amine functional groups reacted with a linear polydimethylsiloxane containing epoxide functional groups and a species does not necessarily render obvious a genus.”

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Initially, the Examiner also took the position that the Declaration was ineffective on grounds that the claims cover the same subject matter as the Gaddam et al. patent. However, in the Advisory Action (dated April 19, 2004), the Examiner stated (at page 3) that “the Examiner agrees that Gaddam et al. is not claiming the same thing as applicant and therefore a proper 131 Declaration could conceivably overcome Gaddam et al.” Thus, the only issue with respect to the Gaddam et al. patent is whether Appellant Jin Hu’s Declaration under 37 C.F.R. 1.131 provides an adequate basis for determining that Appellants completed the invention prior to the effective date to the Gaddam et al. patent, and more specifically whether the completion of the embodiment described in the Declaration is sufficient to provide an adequate basis for inferring that the invention has generic applicability.

For the reasons stated above with respect to the Heilmann et al. publication, it is respectfully submitted that Appellants showing of a reduction to practice of the claimed invention with respect to a specific embodiment (Appellants did not allege criticality with respect to cross-linking chemistry, i.e., selection of reactive functional groups, type of hyperbranched polymer, or type of cross-linking or second polymer) comprising a hyperbranched polyurea having amine functional groups that are cross-linked with an epoxide functionalized linear polysiloxane is sufficient to demonstrate generic applicability of the invention. The claimed invention is directed to curable compositions in which a hyperbranched polymer is combined with a polymer cross-linker. From Appellants’ showing of a reduction to practice of the claimed invention prior to the effective date of the Gaddam et al. patent (and the Heilmann et al. publication), those having ordinary skill in the art would have readily envisioned the use of hyperbranched polymers other than polyureas, polymer cross-linkers other than polysiloxanes, and various chemistries for achieving cross-linking.

Because Appellants have established completion of the invention prior to the effective date of the Gaddam et al. patent, by indirectly antedating the Gaddam et al. disclosure (i.e., showing that the specific embodiment of the Gaddam et al. involving the use of a hyperbranched polyol) would have been obvious from the prior art (e.g., U.S. Patent No. 5,731,095 which discloses the use of a hyperbranched polyol in a coating composition), Appellants’ Declaration under 37 C.F.R. 1.131 has effectively antedated the Gaddam et al. patent. Alternatively, Appellants have directly antedated the prior art by showing completion of a specific embodiment (not species) of the invention.

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Thus, because Appellants have provided a Declaration demonstrating completion of a particular embodiment of the invention which infers that the invention has generic applicability, and because the claims are not the same as those of the Gaddam et al. patent (as admitted by the Examiner in the Advisory Action), the rejection under 35 U.S.C. §102(e) based on the Gaddam et al. patent has been effectively antedated by Appellants' 37 C.F.R. 1.131 Declaration.

IX. Conclusion

As is evident from consideration of the relevant law and Appellants' Rule 131 Declaration, a reversal of the rejections is proper.

Respectfully submitted,

PETAR R. DVORNIC ET AL.

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Date

6/30/04

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Appendix of Claims (37 CFR §1.192(c)(9))

1. A curable composition comprising:
a hyperbranched polymer having a plurality of functional groups of a first type; and
a polymer having functional groups of a second type, wherein the functional groups of the second type are reactive with the functional groups of the first type under at least certain conditions.
2. The composition of claim 1, wherein the hyperbranched polymer has a weight average molecular weight from about 1000 to about 25,000.
3. The composition of claim 1, wherein the polymer having functional groups of the second type is a telechelic linear polymer.
4. The composition of claim 1, wherein the polymer having functional groups of the second type is a linear polymer with functional groups pendant to the main chain backbone.
5. The composition of claim 1, wherein the polymer having functional groups of the second type is a linear polymer having a polymer backbone with two ends and having functional groups at the two ends.
12. The composition of claim 1, wherein the hyperbranched polymer is selected from the group consisting of hyperbranched polyureas, hyperbranched polyurethanes, hyperbranched polyamidoamines, hyperbranched polyamides, hyperbranched polyesters, hyperbranched polycarbosilanes, hyperbranched polycarbosiloxanes, hyperbranched polycarbosilazenes, hyperbranched polyethers, hyperbranched poly(ether ketones), hyperbranched poly(propyleneimine), hyperbranched polyalkylamines, or copolymers thereof.

13. The cured reaction product of a hyperbranched polymer having functional groups of a first type, and another polymer having functional groups of a second type, wherein the functional groups of the second type have reacted with the functional groups of the first type to form a polymer network.
14. The cured reaction product of claim 13, wherein the hyperbranched polymer has a weight average molecular weight from about 1000 to about 25,000.
15. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a telechelic linear polymer.
16. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a linear polymer with functional groups pendant to the main chain backbone.
17. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a linear polymer having a polymer backbone with two ends and having functional groups at the two ends.
24. The cured reaction product of claim 13, wherein the hyperbranched polymer is selected from the group consisting of hyperbranched polyureas, hyperbranched polyurethanes, hyperbranched polyamidoamines, hyperbranched polyamides, hyperbranched polyesters, hyperbranched polycarbosilanes, hyperbranched polycarbosiloxanes, hyperbranched polycarbosilazenes, hyperbranched polyethers, hyperbranched poly(ether ketones), hyperbranched poly(propyleneimine), hyperbranched polyalkylamines, or copolymers thereof.